WHAT IS CLAIMED IS:

1. A nucleic acid construct comprising a HIV-1 *gag/pol* gene having the coding sequence of the *gag/pol* gene set forth in Figure 1.

2. A nucleic acid construct comprising a HIV-1 *pol* gene having the coding sequence of the *pol* gene set forth in Figure 2.

3. A nucleic acid construct comprising a SIV-1 *gag* gene having the coding sequence of the *gag* gene set forth in Figure 3.

4. A nucleic acid construct comprising an HIV or SIV 5' LTR, a packaging signal, a *gag/pol* gene comprising the sequence set forth in Figure 1, a 5' splice site, a 3' splice site, an *env* gene, a *tat* gene, a functional RNA transport element and a 3' HIV or SIV LTR, said nucleic acid construct being able to produce functional Gag, Pol and Env virion components.

5. A vector comprising the nucleic acid construct of Claim 1, 2, 3 or 4.

6. A transformed host cell comprising the nucleic acid construct of Claim 1, 2, 3 or 4.

7. A transformed host cell of Claim 6 wherein said cell is a eukaryote.

8. The host cell of Claim 7 wherein said cell is a human cell.

9. A transformed host cell of Claim 6 wherein said cell is a prokaryote.

10. The host cell of Claim 9 wherein said cell is E. coli.

11. A pharmaceutical composition comprising the nucleic acid construct of Claim 1, 2, 3 or 4 and a pharmaceutically acceptable carrier.

12. A method for inducing antibodies in a mammal comprising administering to a mammal a composition of claim 11, wherein said nucleic acid construct is present in an amount which is effective to induce said antibodies in said mammal.

13. A method for inducing cytotoxic T lymphocytes in a mammal comprising administering to a mammal a composition of claim 11, wherein said nucleic acid construct is present in an amount which is effective to induce cytotoxic T lymphocytes in said mammal.

14. A vaccine composition for inducing immunity in a mammal against HIV infection comprising a pharmaceutically acceptable carrier and further comprising a therapeutically effective amount of a nucleic acid construct of Claim 1 capable of producing HIV Gag and Pol proteins in the absence of HIV Rev regulatory protein in a cell in vivo.

15. A vaccine composition for inducing immunity in a mammal against HIV infection comprising a pharmaceutically acceptable carrier and further comprising a therapeutically effective amount of a nucleic acid construct of Claim 2 capable of producing HIV Pol protein in the absence of HIV Rev regulatory protein in a cell in vivo.

16. A vaccine composition according to claim 14 wherein said mammal is a human.

17. A vaccine composition according to claim 15 wherein said mammal is a human.

18. A method for inducing immunity against HIV infection in a mammal which comprises administering to a mammal a therapeutically effective amount of a vaccine composition according to claim 14.

19. A method for inducing immunity against HIV infection in a mammal which comprises administering to a mammal a therapeutically effective amount of a vaccine composition according to claim 15.

20. A method according to claim 18 wherein said mammal is a human.

21. A method according to claim 19 wherein said mammal is a human.

22. A lentiviral expression system comprising the following:

(a) a packaging vector comprising a HIV-1 *gag/pol* gene having the nucleotide sequence set forth in Figure 1;

(b) a transfer vector; and

(c) an envelope encoding vector.

23. A transformed host cell comprising the lentiviral expression system of Claim 22.

24. A transformed host cell of Claim 23 wherein said cell is a eukaryote.

25. The host cell of Claim 24 wherein said cell is a human cell.

26. A process for making a lentiviral particle comprising expressing HIV Gag and HIV Pol in a host cell from a vector comprising the nucleotide sequences encoding HIV Gag and HIV Pol set forth in Figure 1 in the presence of a gene encoding an envelope protein.

27. A lentiviral expression system which is capable of functioning in the absence of Rev, Tat, and any viral RNA transport element comprising the following:

(a) a packaging vector comprising a HIV-1 *gag/pol* gene which has been mutated to eliminate inhibitory/instability regions;

(b) a transfer vector; and

(c) an envelope encoding vector.

28. A transformed host cell comprising the lentiviral expression system of Claim 27.

29. A transformed host cell of Claim 28 wherein said cell is a eukaryote.

30. The host cell of Claim 29 wherein said cell is a human cell.

31. A process for making a lentiviral particle in the absence of Rev, Tat, or any viral RNA transport element comprising expressing HIV Gag and HIV Pol in a host cell from a HIV-1 *gag/pol* gene which has been mutated to eliminate inhibitory/instability regions and expressing an Envelope protein from a envelope encoding gene whose expression is independent Rev, Tat, or any viral RNA transport element.

32. A nucleic acid construct comprising a SIV-1 *env* gene having the coding sequence of the *env* gene set forth in Figure 16.

33. A vector comprising the nucleic acid construct of claim 32.

34. A transformed host cell comprising the nucleic acid construct of claim 32.

35. A pharmaceutical composition comprising the nucleic acid construct of claim 32 and a pharmaceutically acceptable carrier.